

## REMARKS

### A. Background

Claims 1-43 were pending in the application at the time of the Office Action. The Office Action rejected claims 1-3, 9-11, 14-21, 23-26, 29, and 32 as being anticipated by cited art. Claims 4-8, 12, 13, 22, 27, 28, 30, 31 and 33-43 were rejected as being obvious over cited art. By this response applicant has amended claims 1, 21, 25, 27-29, 31-39, and cancelled claims 30, 42 and 43. As such, claims 1-29 and 31-41 are presented for the Examiner's consideration in light of the following remarks.

### B. Proposed Claim Amendments

By this response, Applicant has amended claim 25 to incorporate the limitations of claim 30, which previously depended from claim 25. Other claim amendments have also been made herein to further clarify the invention and to correct inconsistencies and grammatical errors. In view of the foregoing, applicant submits that the amendments to the claims do not introduce new matter and entry thereof is respectfully requested.

### C. Rejection on the Merits

#### 1. Anticipation Rejections

Paragraph 1 of the Office Action rejects claims 1-3, 9, 10, 25, 26, 29, and 32 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,969,299 to Yamaguchi et al. Applicant respectfully traverses this rejection.

As perhaps best shown in Figures 2 and 5, Yamaguchi teaches a muffler M having a cylindrical pipe body 2. Attached to body 2 is an annular end plate 11, which is "welded to the

rear open end of the muffler pipe 2, [and] includes a recess for receiving an annular gasket 13.” See col. 3, lines 50-52. Applicant notes that Figures 5 and 6 of Yamaguchi show that gasket 13 is a discrete element not integrally formed with any portion of muffler M. A spark arrester A is inserted into and connected to the rear end of muffler M with gasket 13 disposed between the joint of end plate 11 and body 2. See col. 4, lines 35-40. As a spark barrier, spark arrester A includes “a hollow, cylindrical filter element 30 formed by rounding a mesh sheet, such as a wire cloth.” Col. 4, lines 20-22. No other configuration for the mesh sheet is given in Yamaguchi.

Regarding claim 1, the Office Action asserts that gasket 13 of Yamaguchi corresponds to the exhaust cap of claim 1. However, as noted above, gasket 13 is a discrete element not integrally formed with any portion of muffler M. Thus, gasket 13 of Yamaguchi does not equate to “an exhaust cap being integrally formed on the second end of the tubular body such that the exhaust cap and the tubular body comprise a unitary member formed from a single piece of material,” as recited in amended claim 1. The only other portion of Yamaguchi that could conceivably be equated to the exhaust cap of claim 1 is the annular end plate 11, which is attached to the end of pipe 2. However, as noted above, Yamaguchi discloses that end plate 11 is welded to pipe 2, and thus is also not integrally formed as a unitary member, as required by claim 1. Thus, because Yamaguchi does not teach an exhaust cap with the limitations cited above, Applicant respectfully requests that the anticipation rejection regarding claim 1 be withdrawn.

Regarding claim 25, as noted above Yamaguchi teaches a spark barrier, that is simply “a hollow, cylindrical filter element 30 formed by rounding a mesh sheet.” No folds are disclosed by Yamaguchi, nor is it apparent to Applicant how folds could be used with the Yamaguchi device. Thus, Yamaguchi does not disclose or suggest a spark barrier “being comprised of a

sheet of mesh or porous material having one or more exposed folds through which exhaust gas can pass,” as recited in amended claim 25. Accordingly, Applicant respectfully requests that the anticipation rejection of claim 25 be withdrawn.

Claims 2, 3, 9, 10, 26, 29, and 32 each depend from one of claims 1 and 25 and thus incorporate the limitations thereof. As such, Applicant submits that claims 2, 3, 9, 10, 26, 29, and 32 are distinguished over the cited art for at least the same reasons as discussed above with regard to claims 1 and 25. Accordingly, Applicant respectfully requests that the rejection of claims 2, 3, 9, 10, 26, 29, and 32 also be withdrawn.

Paragraph 2 of the Office Action rejects claims 11, 14-21, 23, and 24 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,987,867 to Moller. Applicant respectfully traverses this rejection

As perhaps best shown in Figures 1 and 2 and described at col. 2, lines 8-28, Moller teaches a muffler having a spark arresting chamber 14 bolted onto the end of the muffler via a bolt 12. No mention is made of an exhaust cap. The spark arresting chamber 14 includes “a packet 16 of individual plates or discs” 17 stacked and clamped together by bolt 12. Col. 2, lines 10-12. Moller discloses that “[t]he packet is a stack or group of a number of substantially identical separate and individual members,” and that each “disc 17 is preferably formed of a sheet of metal.” Col. 2, lines 13-16. Spacers 19 are disposed around the edge of each disc 17 “to hold the neighboring discs a predetermined axial distance apart.” Col. 2, lines 18-22. Moller discloses that the “spacers 19 [are] in the form of integral deformations of the sheet [of metal that comprises disc 17] to constitute lugs and to abut against the neighboring similar disc.” Col. 2, lines 19-21. In other words, rigid spacers 19 are formed on each disc 17, and thus are made of the same metal as the disc. When assembled and tightened, “the packet then forms a partial

enclosure with spaces 21 or channels between the individual discs; such spaces serving as conduits for the exhaust gas from the muffler chamber 6 to escape through.” Col. 2, lines 24-26. Spark arresting occurs because the spaces 21 between the plates are too small for harmful sparks to pass through. See col. 3, lines 9-14.

As noted above, Moller teaches using metal discs and integrally formed spacers on the discs to create spaces small enough to prevent large sparks from passing through. As such, no mention of a sheet of mesh or porous material is made in Moller, let alone any folds in such material. In fact, the only discussion of a “sheet” in Moller is the “sheet of metal” from which the discs and spacers are formed. Col. 2, line 16. Applicant submits that this type of “sheet” is typically formed from a solid piece of metal and is not formed from mesh or porous material. Furthermore, because the discs are stacked and clamped together, Applicant submits that it would make no sense to use a mesh or porous material as this type of material would not be rigid enough “to hold the neighboring discs a predetermined axial distance apart.”

Thus, for the reasons set forth above, Moller does not teach or suggest, among other things, a spark barrier “comprised of a sheet of mesh or porous material having a plurality of exposed folds through which exhaust gas can pass” as recited in claim 11, or a spark barrier “comprised of a sheet of mesh or porous material ... comprising: a plurality of discrete exposed folds through which exhaust gas can pass; or at least one exposed continuous fold that repeatedly extends around or along the sheet,” as recited in claim 21. Accordingly, Applicant respectfully requests that the anticipation rejection of claims 11 and 21 be withdrawn.

Claims 14-20, 23, and 24 each depend from one of claims 11 and 21 and thus incorporate the limitations thereof. As such, Applicant submits that claims 14-20, 23, and 24 are distinguished over the cited art for at least the same reasons as discussed above with regard to

claims 11 and 21. Accordingly, Applicant respectfully requests that the rejection of claims 14-20, 23, and 24 also be withdrawn

2. Obviousness Rejections

Paragraph 3 of the Office Action rejects claims 12, 22, 30, and 31 under 35 USC § 103(a) as being obvious over Yamaguchi in view of Moller. Specifically, the Office Action concedes that “Yamaguchi fails to teach a spark barrier having at least seven exposed folds through which exhaust can pass, the folds increasing the surface area of the mesh or porous material per volume of space.” The Office Action alleges, however, that Moller cures this deficiency of Yamaguchi. Applicant respectfully disagrees.

Regarding claim 30, as noted above Applicant has herein cancelled claim 30, thus making the rejection moot regarding this claim.

Regarding claims 12, 22, and 31, as discussed above Moller fails to teach or suggest a spark barrier having a sheet of material that has one or more folds thereon. As such, neither Moller nor Yamaguchi disclose or suggest using folds in their respective spark barriers. Thus, contrary to the assertion by the Office Action, Moller does not cure this deficiency of Yamaguchi.

Accordingly, even assuming, *arguendo*, that it would be obvious to combine Yamaguchi and Moller in the manner set forth in the Office Action, the purportedly obvious combination would not teach or suggest, among other things, a spark barrier “comprised of a sheet of mesh or porous material **having a plurality of exposed folds** through which exhaust gas can pass” as recited in claim 11, or a spark barrier “comprised of a sheet of mesh or porous material ... **comprising: a plurality of discrete exposed folds** through which exhaust gas can pass; **or at**

least one exposed continuous fold that repeatedly extends around or along the sheet,” as recited in claim 21, or a spark barrier “comprised of a sheet of mesh or porous material having one or more exposed folds through which exhaust gas can pass,” as recited in claim 25.

Claims 12, 22, and 31 depend from claims 11, 21, and 25, respectively, and thus incorporate the limitations thereof. As such, Applicant submits that claims 12, 22, and 31 are distinguished over the cited art for at least the same reasons as discussed above with regard to claims 11, 21, and 25. Accordingly, Applicant respectfully requests that the obviousness rejection of claims 12, 22, and 31 be withdrawn

Paragraph 4 of the Office Action rejects claims 4-8, 13, 27, 28, and 33-43 under 35 USC § 103(a) as being obvious over Yamaguchi in view of Moller and further in view of U.S. Patent No. 5,718,045 to Tsukahara et al. The Examiner concedes that Yamaguchi and Moller both “fail to describe a bent or curved tubular neck and exhaust channel.” The Office Action alleges, however, that Tsukahara cures this deficiency of Yamaguchi and Moller. Applicant respectfully traverses this rejection.

Regarding claims 4-8, by virtue of their dependence from independent claim 1, dependent claims 4-8 each require, among other things, “an exhaust cap being integrally formed on the second end of the tubular body such that the exhaust cap and the tubular body comprise a unitary member formed from a single piece of material.” However, as discussed above neither Yamaguchi nor Moller, separately or combined, teach or suggest this limitation, and Tsukahara does not cure this deficiency of Yamaguchi and Moller. Thus, even if the purportedly obvious Yamaguchi/Moller combination is modified by Tsukahara in the purportedly obvious fashion set forth in the Office Action, the resulting combination fails to include all of the

limitations of the rejected claims. Accordingly, Applicant respectfully requests that the obviousness rejection with respect to claims 4-8 be withdrawn.

Regarding claims 13, 27, and 28, by virtue of their dependence from independent claims 11 or 25, dependent claims 13, 27, and 28 each require, among other things, a spark barrier being comprised of a sheet of mesh or porous material “having a plurality of exposed folds” (from claim 11) or “one or more exposed folds” (from claim 25). However, as discussed above neither Yamaguchi nor Moller, separately or combined, teach or suggest either of these limitations, and Tsukahara does not cure this deficiency of Yamaguchi and Moller. Thus, even if the purportedly obvious Yamaguchi/Moller combination is modified by Tsukahara in the purportedly obvious fashion set forth in the Office Action, the resulting combination fails to include all the limitations of the rejected claims. Accordingly, Applicant respectfully requests that the obviousness rejection with respect to claims 13, 27, and 28 be withdrawn.

Regarding claims 33-41, although Paragraph 4 of the Office Action states that claims 34-41 are rejected over the cited prior art, the Office Action fails to present any argument or support as to why the claims are obvious over the cited prior art. Applicant asserts that Yamaguchi, Moller and Tsukahara all disclose mufflers having a circular transverse cross section. As such, even if the references were combined as asserted in the Office Action, applicant submits that the combination would not produce a muffler comprised of a tubular body with a “top wall having a flat exterior surface extending along the length thereof,” as recited in claim 33. Accordingly, Applicant respectfully requests that the obviousness rejection with respect to claim 33 be withdrawn.

Claims 34-41 depend from claim 33 and thus incorporate the limitations thereof. As such, Applicant submits that claims 34-41 are distinguished over the cited art for at least the

same reasons as discussed above with regard to claim 33. Accordingly, Applicant respectfully requests that the obviousness rejection of claims 34-41 also be withdrawn.

Paragraph 5 of the Office Action rejects claims 8 and 33-43 under 35 USC § 103(a) as being obvious over Yamaguchi in view of Moller and further in view of U.S. Patent Application No. 2002/0108428 by Klein. Applicant respectfully traverses this rejection.

Regarding claims 42 and 43, as noted above Applicant has herein cancelled claims 42 and 43, thus making the rejection moot regarding these claims.

Regarding claim 8, as noted above, by virtue of its dependence from independent claim 1, dependent claim 8 requires, among other things, “an exhaust cap being integrally formed on the second end of the tubular body **such that the exhaust cap and the tubular body comprise a unitary member formed from a single piece of material.**” However, as discussed above neither Yamaguchi nor Moller, separately or combined, teach or suggest this limitation, and Klein does not cure this deficiency of Yamaguchi and Moller. Thus, even if the purportedly obvious Yamaguchi/Moller combination is modified by Klein in the purportedly obvious fashion set forth in the Office Action, the resulting combination fails to include all of the limitations of the rejected claim. Accordingly, Applicant respectfully requests that the obviousness rejection with respect to claim 8 be withdrawn.

Regarding claims 33-41, the Examiner includes Figure 2 of Klein as Figure C of the Office Action. The Office Action points to this Figure of Klein as disclosing a “top wall (101) and bottom wall (102) having a substantially flat exterior surface extending along the length thereof.” A careful look at these elements of Figure C reveal that top wall (101) and bottom wall (102) are not flat, but are outwardly curved (see also Figure 13 of Klein). Thus, Klein does not teach a tubular body having a “top wall having a flat exterior surface extending along the length

thereof,” as recited in claim 33. As such, even if the purportedly obvious Yamaguchi/Moller combination is modified by Klein in the purportedly obvious fashion set forth in the Office Action, the resulting combination fails to include all of the limitations of the rejected claim. Accordingly, Applicant respectfully requests that the obviousness rejection with respect to claim 33 be withdrawn.

Claims 34-41 depend from claim 33 and thus incorporate the limitations thereof. As such, Applicant submits that claims 34-41 are distinguished over the cited art for at least the same reasons as discussed above with regard to claim 33. Accordingly, Applicant respectfully requests that the obviousness rejection of claims 34-41 also be withdrawn.

No other objections or rejections were set forth in the Office Action.

D. Conclusion

Applicant notes that this response does not discuss every reason why the claims of the present application are distinguished over the cited art. Most notably, applicant submits that many if not all of the dependent claims are independently distinguishable over the cited art. Applicant has merely submitted those arguments which it considers sufficient to clearly distinguish the claims over the cited art.

In view of the foregoing, applicant respectfully requests the Examiner’s reconsideration and allowance of claims 1-29 and 31-41 as amended and presented herein.

In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Dated this 9<sup>th</sup> day of June 2006.

Respectfully submitted,



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